

Preliminary Classification:

Proposed Class:

Subclass:

NOTE: "All applicants are requested to include a preliminary classification on newly filed patent applications. The preliminary classification, preferably class and subclass designations, should be identified in the upper right-hand corner of the letter of transmittal accompanying the application papers, for example 'Proposed Class 2, subclass 129.'" M.P.E.P., § 601, 7th ed.

**TRANSMITTAL LETTER
TO THE UNITED STATES ELECTED OFFICE (EO/US)
(ENTRY INTO U.S. NATIONAL PHASE UNDER CHAPTER II)**

INTERNATIONAL APPLICATION NO. PCT/FI00/00513	INTERNATIONAL FILING DATE 7 June 2000	PRIORITY DATE CLAIMED 30 June 1999
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TITLE OF INVENTION

LICENSE CONTROL AT A GATEWAY SERVER

APPLICANT(S)

Erkki SOLALA

Box PCT

Assistant Commissioner for Patents

Washington D.C. 20231

ATTENTION: EO/US

CERTIFICATION UNDER 37 C.F.R. §§ 1.8(a) and 1.10*

(When using Express Mail, the Express Mail label number is mandatory;
Express Mail certification is optional.)

I hereby certify that, on the date shown below, this correspondence is being:

MAILING

☒ deposited with the United States Postal Service in an envelope addressed to the Assistant Commissioner for Patents, Washington, D.C. 20231

37 C.F.R. § 1.8(a)

37 C.F.R. § 1.10 *

☐ with sufficient postage as first class mail.

☒ as "Express Mail Post Office to Addressee"

Mailing Label No. EL627511401US (mandatory)

TRANSMISSION

☐ facsimile transmitted to the Patent and Trademark Office, (703)

Signature

Date: December 28, 2001

Debra G. Conrad

(type or print name of person certifying)

* Only the date of filing (§ 1.6) will be the date used in a patent term adjustment calculation, although the date on any certificate of mailing or transmission under § 1.8 continues to be taken into account in determining timeliness. See § 1.703(f). Consider "Express Mail Post Office to Addressee" (§ 1.10) or facsimile transmission (§ 1.6(d)) for the reply to be accorded the earliest possible filing date for patent term adjustment calculations.

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NOTE: To avoid abandonment of the application, the applicant shall furnish to the USPTO, not later than 20 months from the priority date: (1) a copy of the international application, unless it has been previously communicated by the International Bureau or unless it was originally filed in the USPTO; and (2) the basic national fee (see 37 C.F.R. § 1.492(a)). The 30-month time limit may not be extended. 37 C.F.R. § 1.495.

WARNING: Where the items are those which can be submitted to complete the entry of the international application into the national phase are subsequent to 30 months from the priority date the application is still considered to be in the international state and if mailing procedures are utilized to obtain a date the express mail procedure of 37 C.F.R. § 1.10 must be used (since international application papers are not covered by an ordinary certificate of mailing—See 37 C.F.R. § 1.8.

NOTE: Documents and fees must be clearly identified as a submission to enter the national state under 35 U.S.C. § 371 otherwise the submission will be considered as being made under 35 U.S.C. § 111. 37 C.F.R. § 1.494(f).

- I. Applicant herewith submits to the United States Elected Office (EO/US) the following items under 35 U.S.C. § 371:
- a. ☒ This express request to immediately begin national examination procedures (35 U.S.C. § 371(f)).
 - b. ☒ The U.S. National Fee (35 U.S.C. § 371(c)(1)) and other fees (37 C.F.R. § 1.492) as indicated below:

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2. Fees

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CLAIMS FEE	(1) FOR	(2) NUMBER FILED	(3) NUMBER EXTRA	(4) RATE	(5) CALCULATIONS
<input type="checkbox"/> *	TOTAL CLAIMS				
	20	20 - 20 =	0	× \$18.00 =	\$ 0
	INDEPENDENT CLAIMS				
	3	3 - 3 =	0	× \$84.00 =	0
	MULTIPLE DEPENDENT CLAIM(S) (if applicable)				+ \$ 280.00 =
BASIC FEE**	<input type="checkbox"/> U.S. PTO WAS INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where an international preliminary examination fee as set forth in § 1.482 has been paid on the international application to the U.S. PTO: <ul style="list-style-type: none"> <input type="checkbox"/> and the international preliminary examination report states that the criteria of novelty, inventive step (non-obviousness) and industrial activity, as defined in PCT Article 33(1) to (4) have been satisfied for all the claims presented in the application entering the national stage (37 C.F.R. § 1.492(a)(4)) \$100.00 <input type="checkbox"/> and the above requirements are not met (37 C.F.R. § 1.492(a)(1)) \$ 710.00 <input checked="" type="checkbox"/> U.S. PTO WAS NOT INTERNATIONAL PRELIMINARY EXAMINATION AUTHORITY Where no international preliminary examination fee as set forth in § 1.482 has been paid to the U.S. PTO, and payment of an international search fee as set forth in § 1.445(a)(2) to the U.S. PTO: <ul style="list-style-type: none"> <input type="checkbox"/> has been paid (37 C.F.R. § 1.492(a)(2)) \$ 740.00 <input type="checkbox"/> has not been paid (37 C.F.R. § 1.492(a)(3)) .. \$1,040.00 <input checked="" type="checkbox"/> where a search report on the international application has been prepared by the European Patent Office or the Japanese Patent Office (37 C.F.R. § 1.492(a)(5)) \$ 890.00 				890.00
	Total of above Calculations				= 890.00
SMALL ENTITY	Reduction by 1/2 for filing by small entity, if applicable. Assertion must be made. (note 37 C.F.R. § 1.27)				-
	Subtotal				
	Total National Fee				\$ 890.00
	Fee for recording the enclosed assignment document \$40.00 (37 C.F.R. § 1.21(h)). (See Item 13 below). See attached "ASSIGNMENT COVER SHEET".				
TOTAL	Total Fees enclosed				\$ 890.00

*See attached Preliminary Amendment Reducing the Number of Claims.

- ☒ Attached is a ☒ check ☐ money order in the amount of \$ 890.00
☐ Authorization is hereby made to charge the amount of \$ _____
☒ to Deposit Account No. 16-1350
☐ to Credit card as shown on the attached credit card information authorization form PTO-2038.

WARNING: Credit card information should not be included on this form as it may become public.

- ☒ Charge any additional fees required by this paper or credit any overpayment in the manner authorized above.

A duplicate of this paper is attached.

****WARNING:** "To avoid abandonment of the application the applicant shall furnish to the United States Patent and Trademark Office not later than the expiration of 30 months from the priority date: * * * (2) the basic national fee (see § 1.492(a)). The 30-month time limit may not be extended." 37 C.F.R. § 1.495(b).

WARNING: If the translation of the international application and/or the oath or declaration have not been submitted by the applicant within thirty (30) months from the priority date, such requirements may be met within a time period set by the Office. 37 C.F.R. § 1.495(b)(2). The payment of the surcharge set forth in § 1.492(e) is required as a condition for accepting the oath or declaration later than thirty (30) months after the priority date. The payment of the processing fee set forth in § 1.492(f) is required for acceptance of an English translation later than thirty (30) months after the priority date. Failure to comply with these requirements will result in abandonment of the application. The provisions of § 1.136 apply to the period which is set. Notice of Jan. 3, 1993, 1147 O.G. 29 to 40.

- ☐ Assertion of Small Entity Status
☐ Applicant hereby asserts status as a small entity under 37 C.F.R. § 1.27.

NOTE: 37 C.F.R. § 1.27(c) deals with the assertion of small entity status, whether by a written specific declaration thereof or by payment as a small entity of the basic filing fee or the fee for the entry into the national phase as states:

"(c) Assertion of small entity status. Any party (person, small business concern or nonprofit organization) should make a determination, pursuant to paragraph (f) of this section, of entitlement to be accorded small entity status based on the definitions set forth in paragraph (a) of this section, and must, in order to establish small entity status for the purpose of paying small entity fees, actually make an assertion of entitlement to small entity status, in the manner set forth in paragraphs (c)(1) or (c)(3) of this section, in the application or patent in which such small entity fees are to be paid.

(1) Assertion by writing. Small entity status may be established by a written assertion of entitlement to small entity status. A written assertion must:

- (i) Be clearly identifiable;
- (ii) Be signed (see paragraph (c)(2) of this section); and
- (iii) Convey the concept of entitlement to small entity status, such as by stating that applicant is a small entity, or that small entity status is entitled to be asserted for the application or patent. While no specific words or wording are required to assert small entity status, the intent to assert small entity status must be clearly indicated in order to comply with the assertion requirement.

(2) Parties who can sign and file the written assertion. The written assertion can be signed by:

- (i) One of the parties identified in §§ 1.33(b) (e.g., an attorney or agent registered with the Office), §§ 3.73(b) of this chapter notwithstanding, who can also file the written assertion;
- (ii) At least one of the individuals identified as an inventor (even though a §§ 1.63 executed oath or declaration has not been submitted), notwithstanding §§ 1.33(b)(4), who can also file the written assertion pursuant to the exception under §§ 1.33(b) of this part; or
- (iii) An assignee of an undivided part interest, notwithstanding §§ 1.33(b)(3) and 3.73(b) of this chapter, but the partial assignee cannot file the assertion without resort to a party identified under §§ 1.33(b) of this part.

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(3) Assertion by payment of the small entity basic filing or basic national fee. The payment, by any party, of the exact amount of one of the small entity basic filing fees set forth in §§ 1.16(a), (f), (g), (h), or (k), or one of the small entity basic national fees set forth in §§ 1.492(a)(1), (a)(2), (a)(3), (a)(4), or (a)(5), will be treated as a written assertion of entitlement to small entity status even if the type of basic filing or basic national fee is inadvertently selected in error.

(i) If the Office accords small entity status based on payment of a small entity basic filing or basic national fee under paragraph (c)(3) of this section that is not applicable to that application, any balance of the small entity fee that is applicable to that application will be due along with the appropriate surcharge set forth in §§ 1.16(e), or §§ 1.16(f).

(ii) The payment of any small entity fee other than those set forth in paragraph (c)(3) of this section (whether in the exact fee amount or not) will not be treated as a written assertion of entitlement to small entity status and will not be sufficient to establish small entity status in an application or a patent."

3. ☒ A copy of the International application as filed (35 U.S.C. § 371(c)(2)):

NOTE: Section 1.495 (b) was amended to require that the basic national fee and a copy of the international application must be filed with the Office by 30 months from the priority date to avoid abandonment. "The International Bureau normally provides the copy of the international application to the Office in accordance with PCT Article 20. At the same time, the International Bureau notifies applicant of the communication to the Office. In accordance with PCT Rule 47.1, that notice shall be accepted by all designated offices as conclusive evidence that the communication has duly taken place. Thus, if the applicant desires to enter the national stage, the applicant normally need only check to be sure the notice from the International Bureau has been received and then pay the basic national fee by 30 months from the priority date." Notice of Jan. 7, 1993, 1147 O.G. 29 to 40, at 35-36. See item 14c below.

- a. ☐ is transmitted herewith.
- b. ☐ is not required, as the application was filed with the United States Receiving Office.
- c. ☒ has been transmitted
 - i. ☒ by the International Bureau.
Date of mailing of the application (from form PCT/1B/308):
1/11/01
 - ii. ☐ by applicant on _____ (Date)

4. ☒ A translation of the International application into the English language (35 U.S.C. § 371(c)(2)):

- a. ☐ is transmitted herewith.
- b. ☒ is not required as the application was filed in English.
- c. ☐ was previously transmitted by applicant on _____ (Date)
- d. ☐ will follow.

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5. ☒ Amendments to the claims of the International application under PCT Article 19 (35 U.S.C. § 371(c)(3)):

NOTE: The Notice of January 7, 1993 points out that 37 C.F.R. § 1.495(a) was amended to clarify the existing and continuing practice that PCT Article 19 amendments must be submitted by 30 months from the priority date and this deadline may not be extended. The Notice further advises that: "The failure to do so will not result in loss of the subject matter of the PCT Article 19 amendments. Applicant may submit that subject matter in a preliminary amendment filed under section 1.121. In many cases, filing an amendment under section 1.121 is preferable since grammatical or idiomatic errors may be corrected." 1147 O.G. 29-40, at 36.

- a. ☐ are transmitted herewith.
b. ☐ have been transmitted
i. ☐ by the International Bureau.
Date of mailing of the amendment (from form PCT/1B/308):

- ii. ☐ by applicant on _____. (Date)

- c. ☒ have not been transmitted as
i. ☒ applicant chose not to make amendments under PCT Article 19.
Date of mailing of Search Report (from form PCT/ISA/210.):
11/29/00

- ii. ☐ the time limit for the submission of amendments has not yet expired. The amendments or a statement that amendments have not been made will be transmitted before the expiration of the time limit under PCT Rule 46.1.

6. ☒ A translation of the amendments to the claims under PCT Article 19 (38 U.S.C. § 371(c)(3)):

- a. ☐ is transmitted herewith.
b. ☐ is not required as the amendments were made in the English language.
c. ☒ has not been transmitted for reasons indicated at point 5(c) above.

7. ☒ A copy of the international examination report (PCT/IPEA/409)

- ☒ is transmitted herewith.
☐ is not required as the application was filed with the United States Receiving Office.

8. ☒ Annex(es) to the international preliminary examination report

- a. ☒ is/are transmitted herewith.
b. ☐ is/are not required as the application was filed with the United States Receiving Office.

9. ☒ A translation of the annexes to the international preliminary examination report

- a. ☐ is transmitted herewith.
b. ☒ is not required as the annexes are in the English language.

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10. ☒ An oath or declaration of the inventor (35 U.S.C. § 371(c)(4)) complying with 35 U.S.C. § 115
- a. ☐ was previously submitted by applicant on _____. (Date)
 - b. ☐ is submitted herewith, and such oath or declaration
 - i. ☐ is attached to the application.
 - ii. ☐ identifies the application and any amendments under PCT Article 19 that were transmitted as stated in points 3(b) or 3(c) and 5(b); and states that they were reviewed by the inventor as required by 37 C.F.R. § 1.70.
 - c. ☒ will follow.

II. Other document(s) or information included:

11. ☒ An International Search Report (PCT/ISA/210) or Declaration under PCT Article 17(2)(a):
- a. ☒ is transmitted herewith.
 - b. ☐ has been transmitted by the International Bureau.
Date of mailing (from form PCT/IB/308): _____
 - c. ☐ is not required, as the application was searched by the United States International Searching Authority.
 - d. ☐ will be transmitted promptly upon request.
 - e. ☐ has been submitted by applicant on _____. (Date)

12. ☒ An Information Disclosure Statement under 37 C.F.R. §§ 1.97 and 1.98:
- a. ☒ is transmitted herewith.

Also transmitted herewith is/are:

- ☒ Form PTO-1449 (PTO/SB/08A and 08B).
 - ☒ Copies of citations listed.
 - b. ☐ will be transmitted within THREE MONTHS of the date of submission of requirements under 35 U.S.C. § 371(c).
 - c. ☐ was previously submitted by applicant on _____. (Date)
13. ☐ An assignment document is transmitted herewith for recording.
- A separate ☐ "COVER SHEET FOR ASSIGNMENT (DOCUMENT) ACCOMPANYING NEW PATENT APPLICATION" or ☐ FORM PTO 1595 is also attached.

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14. ☒ Additional documents:

- a. ☐ Copy of request (PCT/RO/101)
- b. ☒ International Publication No. W0 01/03368 A1
 - i. ☒ Specification, claims and drawing
 - ii. ☐ Front page only
- c. ☒ Preliminary amendment (37 C.F.R. § 1.121)
- d. ☒ Other
PCT/IB/308; PCT/IB/306; PCT/IB/332; Finnish Office Action, PCT International Search Report.

15. ☒ The above checked items are being transmitted

- a. ☒ before 30 months from any claimed priority date.
- b. ☐ after 30 months.

16. ☐ Certain requirements under 35 U.S.C. § 371 were previously submitted by the applicant on _____, namely:

AUTHORIZATION TO CHARGE ADDITIONAL FEES

WARNING: Accurately count claims, especially multiple dependant claims, to avoid unexpected high charges if extra claims are authorized.

NOTE: "A written request may be submitted in an application that is an authorization to treat any concurrent or future reply, requiring a petition for an extension of time under this paragraph for its timely submission, as incorporating a petition for extension of time for the appropriate length of time. An authorization to charge all required fees, fees under § 1.17, or all required extension of time fees will be treated as a constructive petition for an extension of time in any concurrent or future reply requiring a petition for an extension of time under this paragraph for its timely submission. Submission of the fee set forth in § 1.17(a) will also be treated as a constructive petition for an extension of time in any concurrent reply requiring a petition for an extension of time under this paragraph for its timely submission." 37 C.F.R. § 1.136(a)(3).

NOTE: "Amounts of twenty-five dollars or less will not be returned unless specifically requested within a reasonable time, nor will the payer be notified of such amounts; amounts over twenty-five dollars may be returned by check or, if requested, by credit to a deposit account." 37 C.F.R. § 1.26(a).

☒ Please charge, in the manner authorized above, the following additional fees that may be required by this paper and during the entire pendency of this application:

☒ 37 C.F.R. § 1.492(a)(1), (2), (3), and (4) (filing fees)

WARNING: Because failure to pay the national fee within 30 months without extension (37 C.F.R. § 1.495(b)(2)) results in abandonment of the application, it would be best to always check the above box.

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☒ 37 C.F.R. § 1.492(b), (c) and (d) (presubmitted extra claims)

NOTE: Because additional fees for excess or multiple dependent claims not paid on filing or on later presentation must only be paid or these claims cancelled by amendment prior to the expiration of the time period set for response by the PTO in any notice of fee deficiency (37 C.F.R. § 1.492(d)), it might be best not to authorize the PTO to charge additional claim fees, except possible when dealing with amendments after final action.

☒ 37 C.F.R. § 1.17 (application processing fees)

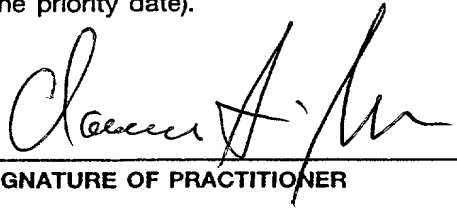
☒ 37 C.F.R. § 1.17(a)(1)-(5) (extension fees pursuant to § 1.136(a).

☐ 37 C.F.R. § 1.18 (issue fee at or before mailing of Notice of Allowance, pursuant to 37 C.F.R. § 1.311(b))

NOTE: Where an authorization to charge the issue fee to a deposit account has been filed before the mailing of a Notice of Allowance, the issue fee will be automatically charged to the deposit account at the time of mailing the notice of allowance. 37 C.F.R. § 1.311(b).

NOTE: 37 C.F.R. § 1.28(b) requires "Notification of any change in loss of entitlement to small entity status must be filed in the application . . . prior to paying, or at the time of paying . . . issue fee." From the wording of 37 C.F.R. § 1.28(b): (a) notification of change of status must be made even if the fee is paid as "other than a small entity" and (b) no notification is required if the change is to another small entity.

☒ 37 C.F.R. § 1.492(e) and (f) (surcharge fees for filing the declaration and/or filing an English translation of an International Application later than 30 months after the priority date).



SIGNATURE OF PRACTITIONER

Clarence A. Green

(type or print name of practitioner)

PERMAN & GREEN, LLP

P.O. Address

425 Post Road, Fairfield, CT 06430 USA

Reg. No.: 24,622

Tel. No.: (203 .) 259-1800

Customer No.: 2512

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Express Mail No.: EL627511401US

In re Application of: Erkki SOLALA.

INTERNATIONAL APPLICATION NO.: PCT/FI00/00513

INTERNATIONAL FILING DATE: 6/7/00

TITLE: LICENSE CONTROL AT A GATEWAY SERVER

ATTORNEY DOCKET NO.: 442-010768-US (PAR)

Box PCT
Commissioner of Patents
Washington, D.C. 20231

PRELIMINARY AMENDMENT

Dear Sir:

Please amend the above-identified, patent application
as follows:

IN THE SPECIFICATION CONTAINED IN THE PRELIMINARY
EXAMINATION REPORT AS AMENDED SHEETS:

After the Title and before the first paragraph, please
insert the following new paragraph:

--This application claims the benefit of the earlier
filed International Application No. PCT/FI00/00513,
International Filing Date, June 7, 2000, which
designated the United States of America, and which
international application was published under PCT
Article 21(2) in English as WO Publication No. WO
01/03368 A1.--

On page 18 of the Amended Sheets, after the heading
"Claims" please insert the following:

--What is claimed is:--

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IN THE CLAIMS

Please amend Claims 10 and 18 as rewritten below:

10. (Amended) A method according to claim 1, **characterised** in that the terminals comprise mobile terminals, for example cellular telephones, supporting the Wireless Application Protocol, WAP.

18. (Amended) A server according to claim 11, **characterised** in that the server comprises a gateway server serving a plurality of mobile terminals.

REMARKS

In accordance with 37 C.F.R. §1.121 (as amended on 11/7/2000) the rewritten claim(s) above are shown on separate page(s) marked up to show all the changes relative to the previous version of that section.

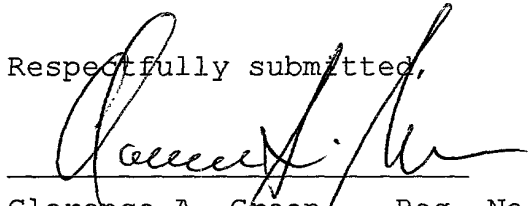
Claim 10 originally depended from claims 1 through 9. The change to claim 10 is to remove the multiple dependencies to claims 2 through 9. Claim 10 remains dependent on the main base claim 1 from which claims 2 through 9 also depend. Thus, the amendment does not limit or narrow claim 10 and is not being made for any reason related to the statutory requirements for a patent.

Claim 18 originally depended from claims 11 through 17. The change to claim 18 is to remove the multiple dependencies to claims 12 through 17. Claim 18

remains dependent on the main base claim 11 from which claims 12 through 17 also depend. Thus, the amendment does not limit or narrow claim 18 and is not being made for any reason related to the statutory requirements for a patent.

The Commissioner is hereby authorized to charge payment for any additional fees associated with this communication or credit any over payment to Deposit Account No. 16-1350.

Respectfully submitted,



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28 Dec 01

Date

200119893-030702

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Application entitled: LICENSE CONTROL AT A GATEWAY
SERVER

Marked Up Claims:

10. (Amended) A method according to ~~any preceding~~
~~claim~~claim 1, **characterised** in that the terminals
comprise mobile terminals, for example cellular
telephones, supporting the Wireless Application
Protocol, WAP.

18. (Amended) A server according to ~~any of claims 11-~~
~~17~~claim 11, **characterised** in that the server comprises
a gateway server serving a plurality of mobile
terminals.

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License control at a gateway server

The present invention relates to license control at a gateway server for controlling the right for a message to enter the server. It is particularly suitable for a mobile protocol such as WAP (Wireless Application Protocol) for enabling a mobile terminal to access the Internet via the gateway server.

The term "Internet" is commonly used to describe information, content, which can be accessed using a terminal, typically a PC, connected via a modem to a telecommunications network. The content can be stored at many different sites remote from the accessing computer, although each of the remote sites is also linked to the telecommunications network. The content can be structured using HyperText Mark-up Language (HTML). The Internet is made workable by the specification of a standard communications system which makes use of a number of protocols, such as the Transfer Control Protocol (TCP), the User Datagram Protocol (UDP), and the Internet Protocol (IP), to control the flow of data around the numerous different components of the Internet. TCP and UDP are concerned with the prevention and correction of errors in transmitted Internet data. IP is concerned with the structuring and routing of data. On top of that, other application specific protocols may be provided to manage and manipulate the various kinds of information available via the Internet, for example HTTP to access HTML content, FTP to access files or SMTP to access e-mail.

The Internet is physically constructed from a hierarchy of telecommunication and data communication networks, for example local area networks (LANs), regional telephone networks, and international telephone networks. These networks are connected internally and externally by so-called "routers" which receive data from a source host, or a previous router in a transmission chain, and route it to the destination host or the next router in the transmission chain.

With increased use of mobile cellular telephones, there is a growing demand for so-called mobile Internet access, in which access is made from a portable

computer connected to a cellular telephone or from an integrated computer/cellular phone device. Typically, the purpose of such access is to obtain content from the Internet. It has also been proposed to provide Internet access to advanced mobile terminals, so-called communicators and smart phones, by means of the Wireless Application Protocol (WAP), for example. WAP has an architecture in which there is a protocol stack having an application layer (called the Wireless Application Environment or WAE), a session layer (called the Wireless Session Protocol or WSP), a transaction layer (called the Wireless Transaction Protocol or WTP), a security layer (called Wireless Transport Layer Security or WTLS) and a transport layer (called the Wireless Datagram Protocol or WDP) as shown in Figure 1. Each of the layers of the architecture is accessible by the layers above as well as by other services and applications. These protocols are designed to operate over a variety of different bearer services such as SMS (Short Message Service), CSD (Circuit Switched Data), GPRS (General Packet Radio Service) etc. A specification describing the WAP architecture and the protocol layers is available from <http://www.wapforum.org/>.

Obtaining access to the Internet generally involves having sessions between a terminal, such as a mobile terminal, and a server. A session is a series of interactions between a terminal and a server having a well-defined beginning and end and involving agreed-upon characteristics. Typically, a session involves a peer announcing to another peer a desire to establish a session, both peers negotiating the characteristics of the session, the peers engaging in a variety of transactions and one of the peers ending the session. The characteristics which are negotiated are typically the length of packets to be exchanged, the character sets which can be understood and manipulated and the versions of protocols which are to be used. A transaction is a basic unit of interaction and may include requesting and receiving information, aborting an ongoing session and informing a peer of a situation in an on-going session. All session operations to establish and terminate a session as well as all transactions result in events being generated and received by the peer. There are many event sources (sessions and transactions).

The operations which an application can invoke to generate events are called service primitives. Service primitives represent the logical exchange of information and control between the session layer and other layers. They consist of commands and their respective responses associated with the particular service provided. Invoking a service primitive in a peer on one side of a communication link results in an event being generated in a peer in the other side of the link. Service primitives are present in all communication protocols.

An active session can involve multiple transactions and so can generate multiple events. Depending on the speed at which an application can process events coming from its peer, it can happen that there are more transactions than it can process and so it receives more events than it can process. In this case, the events are queued up and wait to be processed within the context of that session. Events connected or related to the same session generally need to be processed in a specific order. In some protocols, a session can be suspended, in which state no transactions are allowed except a request to resume or to terminate.

In WAP, communication between layers and between entities within the session layer are also accomplished by means of service primitives.

Most transactions are either of the push type or of the pull (request-reply) type. In push type transactions a peer sends information which has not been specifically requested and in pull type transactions, a peer specifically requests to receive information from another peer.

Terminals, such as personal computers, obtain information from the Internet through a server, such as a gateway server. The Internet uses HTTP which is a simple request-reply protocol. Almost the only event is an HTTP request. The operating system of the server runs a number of applications and so creates a number of threads to deal with them, for example proxies and mail servers. The applications use the available threads as they are required. In the case of Internet

access by a PC, it is convenient to create a thread in the server dynamically to deal with each request because the requests are independent from each other. Once the request has been processed, the thread has finished its activity and is terminated.

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In a communication system comprising a gateway server and a plurality of mobile terminals, establishing a session requires a relatively large amount of bandwidth because a terminal and a server must negotiate many characteristics relevant to the session. Furthermore, information which is unique to a particular opened session may be lost if the session is terminated. This unique information could have been negotiated as a result of transactions. For example, it may be the status of a game. In order to avoid opening and closing sessions on demand and establishing new sessions whenever they are needed, the sessions may be kept open for a long time, even in an inactive state, so that they can be resumed when needed. A session can remain open for days or even weeks until it is closed or until the terminal no longer receives power, for example from a battery. An application in the server will use the operating system thread management service and create a number of threads to manage these sessions.

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In WAP typically a gateway server will be the port for allowing a terminal to access the Internet. The gateway server will be provided by e.g. a service provider, and users may access the gateway server by purchasing a license or number of licenses from the service provider. Accordingly, there is a need to implement a solution at the gateway server for controlling access to the gateway server.

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Equally the gateway server is usually implemented as a computer program which when loaded into a computer works as a gateway server. Thereby the manufacturer of the gateway server, i.e. the maker of the computer program, may sell licenses to the service provider, which limits the number of users that the service provider is able to serve without purchasing additional licenses from the manufacturer. Thus there is a need to implement a solution at the gateway server for controlling number of total licenses in use at the server.

Now a gateway server has been invented where license control is performed on a message entering the gateway server before it is allowed to pass on to the protocol stack, i.e. license control is performed below the protocol stack in the gateway server hierarchy. Identification of the sender of the message is checked to determine access rights. In a WAP gateway or proxy server there is more specifically provided below the WAP stack and above the bearers a bearer gate which performs the license control, and through which all data traffic coming from the bearers passes before going to the protocol stack.

The present invention can be used for controlling access right of a message in both of the above mentioned situations, namely for controlling that the service provider does not exceed the number of licenses it has purchased from the manufacturer of the gateway server and for controlling that a user entity having purchased a number of licenses from the service provider does not exceed that number of licenses.

In a preferred embodiment of the invention datagrams or data packets are received via a particular bearer. This data packet has an address of the sender, also called source address, remote address or client address. Moreover, each data packet has a port number of the sender, also called source port, remote port or client port information. In an embodiment of the present invention both the address and port number of the sender are checked for identifying the sender for license control purposes.

Licenses are calculated on a session basis, i.e. controlling concurrent sessions from the same license holder. There is no limit for number of transactions that are allowed during a session per license, but the license control is about how many sessions are allowed to execute transactions concurrently. In a particular embodiment the sessions will be given a time window during which the license is reserved, and unless there is data traffic within that session within the time window, the license for that session will be released. Next time there is a need for

executing transactions within that session, a new license needs to be taken into use.

According to a first aspect of the invention there is provided a server for receiving a message from a terminal and comprising a protocol stack for processing the message according to a particular protocol stack, the server further comprising: license control means for controlling the access right of the message to enter the server before the message is allowed to pass to the protocol stack.

In one particular embodiment, the invention comprises a gateway server serving a plurality of mobile terminals. It may be a WAP gateway. For example, commands, such as WAP requests, may be sent in short messages (generated by SMS) and sent to a WAP/HTTP gateway. The gateway will interpret these as WAP network packets and will perform the necessary HTTP transactions on an origin server. After that it sends back a WAP message on the same bearer, i.e. as an SMS message containing the result.

According to a second aspect of the invention there is provided a method of controlling, at a server, access right of a message received from a terminal at the server, and where the message is processed by a protocol stack, the method comprising: checking the right of the message to enter the server before the message is allowed to pass to the protocol stack.

According to a third aspect of the invention there is provided a computer program product for controlling, at a server, access right of a message received from a terminal at the server, and where the message is processed by a protocol stack, the computer program product comprising: computer readable program means for controlling the access right of the message to enter the server before the message is allowed to pass to the protocol stack.

Preferably the invention is implemented as software, which when loaded into a computer will function as a gateway server according to the present invention.

The invention will be discussed below in detail by referring to the enclosed drawings, in which

Figure 1 shows an arrangement of protocol stacks in the Wireless Application Protocol (WAP),

Figure 2 shows a communication system,

Figure 3 shows a gateway server embodied in hardware,

Figure 4 shows a functional block diagram of a gateway server according to the present invention, and

Figure 5 shows steps performed at license control as a flow diagram.

In the following example, communication is described with reference to the Wireless Application Protocol (WAP) mentioned above. It should be noted that the invention is not limited to the use of WAP and other protocols and specifications may be used.

Figure 2 shows a communication system comprising a plurality of mobile terminals 2 having access to the Internet 4. The mobile terminals transmit signals 6 which are received by and transmitted through a wireless network 8. The wireless network can be a number of different network systems such as GSM, CDMA IS-95, TDMA IS-136, and UMTS, and can use different type of communication within one and the same system, for example SMS, GPRS or HSCSD communication within GSM. Accordingly a number of different bearers can be used for transmitting signals 6. WAP requests 6 received by the network 8 are routed to a proxy or gateway server 12. The server 12 translates WAP requests into HTTP requests and thus allows the mobile terminals 2 to request information from a web server 14 and thus browse the Internet 4. Information obtained from the web server 14 is encoded by the proxy into a suitable format and then transmitted by the wireless network to the mobile terminal 2 which requested it. The response comprises wireless mark-up language (WML) according to WAP. WML is a tag-

based display language providing navigational support, data input, hyperlinks, text and image presentation, and forms. It is a browsing language similar to HTML. The mobile terminal 2 processes and uses the information. If the web server 14 provides content in WAP/WML format, the server 12 can retrieve such content directly from the web server 14. However, if the web server provides content in WWW format (such as HTML), a filter may be used to translate the content from WWW format to WAP/WML format.

The Wireless Application Protocol is applicable to a number of different systems including GSM-900, GSM-1800, GSM-1900, CDMA IS-95, TDMA IS-136, wide-band IS-95 and third generation systems such as IMT-2000, UMTS and W-CDMA.

Although Figure 2 shows information being obtained from the Internet, the proxy itself may contain the desired information. For example, the client may retrieve information from the file system of the proxy.

In addition to the web server 14, the mobile terminals may communicate with a wireless telephony application (WTA) server 18.

Figure 3 shows a gateway server embodied in hardware such as a computer 20. The computer 20 has dynamic memory, processing power and memory to store all of the programs needed to implement the gateway server such as the application program, the protocol stacks and the operating system. The computer 20 comprises a user interface such as a keyboard 22 and a display 23 and a server program 24. The server program 24 has an application program 26 for processing events of the underlying protocol, such as handling a request to retrieve WML from a server, and protocol stacks such as a WAP protocol stack 28 and a HTTP protocol stack 30. The application program 26 controls flow of data, including commands, requests and information, between the computer and various networks including a telephone network 32, the Internet 34 and a data network and circuit switched data networks 35. The application program 26 may further run a program that can be seen on the display 23 and controlled with the keypad 22

(and e.g. a mouse). The computer 20 communicates with the Internet 34 through the HTTP protocol stack 30 and an interface 36. The computer 20 communicates with the telephone network 34 and the data network 35 through interfaces 38 and 40. The server program 24 also comprises a gateway 42 which converts between HTTP and WAP. SMS messaging may be provided via a data connection through appropriate hardware to the operator's network.

Individual threads 44 present in the application program 26 and the WAP protocol stack 28 use processors 46 in the computer 20 to carry out necessary processing tasks. Allocation of threads to processors is provided by threading services 48 present within the operating system 50 of the computer 20.

As shown in Figure 1 the WAP stack is built on top of so called bearers (which provide datagram services). These bearers can be, for example, SMS or CSD. The bearers have their own protocol and are implemented through protocol stack implementations.

Figure 4 shows a functional block diagram (embodied in software) of a gateway server hierarchy according to the present invention, at least to the extent for understanding the invention. The gateway server includes a Wireless Protocol Stack (WPS) 50, such as the WAP stack shown in Figure 1. Below the WPS are the different bearer adapters 51 which access the different bearers through bearer drivers 52.

The function of a bearer adapter has been specified in the Wireless Datagram Protocol specification, i.e. the WDP specification of WAP. There the bearer adapter is called an Adaptation Layer or Tunnel. The Adaptation Layer is the layer of the WDP protocol that maps the WDP protocol functions directly onto a specific bearer. The Adaptation Layer is different for each bearer and deals with the specific capabilities and characteristics of that bearer service. Moreover, at the WAP Gateway or server the Tunnel terminates and passes the WDP packets on to

a WAP Proxy/Server via a Tunnelling protocol, which is the interface between the Gateway that supports the bearer service and the WAP Proxy/Server.

The Adaptation Layer or Bearer Adapter is thus a component that connects the WAP Server to the wireless network. To support a number of different bearers the gateway server will thus need to have a number of different bearer adapters 51.

All data from a WAP terminal comes to the gateway server via a bearer represented in the figure by bearer drivers 52 and bearer adapters 51. From the bearer adapter the data enters the WAP stack 50, which can include all or only some of the protocol layers shown in Figure 1. According to the present invention it has been realised to perform license control directly from the data entering the gateway before it enters the protocol stack 50. In order to do this there is provided functionally between the WPS 50 and the bearer adapters 51 a bearer gate 53, through which all datagram traffic between a bearer adapter and the WPS passes. Accordingly the bearer gate 53 performs the license control, i.e. checks if every incoming data packet has access rights or not, whereby the packet is either allowed to pass to the protocol stack for processing or is discarded.

The WDP specification specifies a service primitive T-DUnitdata used to transmit data. It comprises amongst other the following parameters:

1) The *Source Address*, which is the address of the sender and is the unique address of the device making a request to the WDP layer. The source address may be an MSISDN number (Mobile Station ISDN number), IP address (given as numbers e.g. 153.226.0.56 or as symbols a.g. mycomputer.company.subsidiary.com), X.25 address or other identifier. Thereby the length of the Source Address parameter may vary according to what the source is.

2) The *Source Port*, which is the application address or port number associated with the source address of the requesting communication instance. The port number of the sender is a 16-bit number.

- 3) The *User Data* , which is the user data carried by the WDP protocol. The unit of data submitted to or received from the WDP layer is also referred to as the Service Data Unit. This is the complete unit (message, packet, package) of data which the higher layer (at the sender) has submitted to the WDP layer for transmission. The
- 5 WDP layer will transmit the Service Data Unit and deliver it to its destination without any manipulation of its content.

The *Source Address* and *Source Port* parameters are part of a header portion of a WAP message and the *User Data* is the actual payload or data of the message.

10

For license control the bearer gate will read both the *Source Address* and *Source Port* information in every data packet that is received at the bearer gate 53 via the bearer adapters 51. Each combination of a client address (*Source Address*) and a client port (*Source Port*) makes up a concurrent session and thereby requires one

15 license. This means that the same terminal can consume more than one license, for example if the user is concurrently using two different applications at the terminal by accessing a service via the gateway server (e.g. a banking application and a calendar application). Usage of also the client port number (*Source Port*) for identifying the sender is necessary to prevent someone from using a proxy

20 machine to circumvent the license check (with UDP bearer), in which case several terminals could go via the proxy machine to the gateway, whereby the *Source Address* would always be the same. However, the *Source Port* information in the data packet would still be different.

- 25 The licenses are calculated on a session basis, i.e. controlling concurrent sessions from the same license source. There is no limit for number of transactions, but the license control is about how many sessions are allowed to execute transactions concurrently. Preferably in an embodiment of the present a fixed size time window has been provided during a session needs a license to execute transactions. The
- 30 time window may be for example 10 minutes. This means that when a session is established one license is reserved (which is done for every combination of *Source Address* and *Source Port*). If no data arrives to the gateway server over

that session during that time window, i.e. during 10 minutes, the license is released. Next time that session wants to execute a transaction, a new license is needed, i.e. that data in that session is allowed to pass only if there still is a free license for that license holder.

- 5 The idea of the time window in the licensing check is that gateway server accepts during the last 10 minutes data packets only from Y different concurrent sessions. If a data packet from a concurrent session Y+1 is received, Wireless Control Message Protocol (WCMP) message 'Destination Unreachable (address unreachable)' is sent to the client (i.e to the WAP terminal).
- 10 The maximum number of the concurrent sessions, Y, is determined by checking the contents of a license storage file (that is stored in a server computer in a normal manner) when the server is started. The license storage file contains encrypted license strings. Each license string allows a certain number concurrent sessions, e.g. 5/10/30/100 or 1000 additional concurrent sessions.
- 15 The steps performed at the bearer gate for checking the access rights of a data packet is described in following in relation to Figure 5. At step 60 a data packet is received at the bearer gate via a bearer adapter. At step 61 the address and port number of the sender is read from the data packet. The bearer gate handles the remote address (*Source Address*) as unformatted binary data independent of
- 20 whether it is an MSISDN, IP address, X.25 address or other identifier. At step 62 the current time T is attached to the message. For this purpose the server keeps a clock as is normal for computers. Next, at step 63 a check is being made from a list or file of already reserved licenses to see if any reservation or entry is older
- 25 than the allowed time window, which in this example is 10 minutes. If such an entry is found, the entry is removed from the list or file and the license is freed. Also at step the number of entries in use C, i.e. the number of the licenses in use, is counted. At step 64 a check is made to see if a license already exists for the session in which the data packet was received (i.e if less than 10 minutes has
- 30 passed since the last transaction in that session). If 'yes', the time in the entry is updated in the entry file and processing of the data packet is allowed, whereby the

data packet is allowed to pass to the protocol stack (step 65). If the answer to the check at step 64 is 'no', the question is about a new concurrent session, in which case we go to step 66.

In step 66 it is checked whether the number of licenses C in use by the particular licensee is less than the number of licenses Y that the licensee has purchased. If 'yes', goto step 67 where a new license is taken into use, i.e. a new entry is marked to the entry list, C is incremented by one and processing of the message is allowed, whereby the data packet is allowed to pass to the protocol stack. If the answer to step 66 is 'no', whereby the number of licenses C in use by the particular licensee is equal to (or more which it shouldn't be) than the number of licenses Y that the licensee has purchased, a WCMP message (Wireless Control Message Protocol) with the contents "Destination Unreachable" is sent by the bearer gate to the client terminal, and the data packet is discarded (step 68). Relating to step 66, the maximum number of concurrent sessions, i.e. the number of licenses that the license holder has purchased, Y, is determined by checking the contents of the license storage list (e.g. a separate file) when the server is started. The license storage file contains encrypted license strings. Each license string allows e.g. 5/10/30/100 or 1000 additional concurrent sessions.

If it is assumed that all data packets have come from a known and valid client address, then the above explained steps are sufficient for performing the license control. This can be a good approach for the purposes of controlling that the service provider does not exceed the number of licenses purchased from the manufacturer of the gateway server. However, a service provider might want to restrict access to messages coming only from certain predetermined terminals.

For that purpose a separate check might be made by keeping at the gateway server a list (or separate file) of allowed addresses and port numbers in general and related to a particular license, whereby if the address and port number do not correspond to any allowed license then the message is discarded and an error message is returned. That check can be done fully separately from the license control check of Figure 5 is performed of after step 61 in Figure 5.

Returning to Figure 4 the bearer gate 53 has a link to a server manager 54, which controls server operation. The server manager 54 gets control commands from the administrator 55, who is allowed to control server operation with a user interface 56, such as the keypad 22 and display 23 shown in Figure 3. The connection to Internet, such as to a web server is via interface 57.

Between the bearer gate 53 and WPS 50 there is an interface 58a, which is an interface to send and receive WDP datagrams and to retrieve information about the Bearer adapter 51. Further the datagrams are transferred between the bearer gate and the bearer adapter over interface 58b. There is further an interface 59 between the server manager 54 and bearer gate 53 for controlling and configuring the operation of the server and bearer gate 53. Via the user interface 56 the number of licenses purchased or held by a licensee can be changed by the administrator 55.

The different operations and functional blocks shown in Figure 4 are preferably implemented as software blocks, which are run by processor 46 by calling threads 44 in the application program 26 and protocol stack 28.

The present invention discloses a method by which license control can be handled in a simple manner by performing it below the protocol stack (in view of the server hierarchy). In a WAP gateway server any requirement of using many separate license systems for all combinations of the WAP protocol are avoided by the present invention. A license control system could also be implemented above or within the WAP stack, but would lead to separate license control systems for different protocol combinations. The remote client, i.e. the terminal can make a connection to the WAP server using any of the layers or using many combinations of the protocols. For example, looking at Figure 1, protocol combinations WDP+WTLS (for services that only require datagram transport with security) , WDP+WTP (for applications that only require transaction services without security), WDP+WTP+WSP (for applications that do not require security, but otherwise normal WAP sessions), WDP+WTLS+WTP (for applications that only

require transaction services with security) and WDP+WTLS+WTP+WSP (full WAP stack) are all possible and they would all need own licensing counting system, if implemented above the stack. If license control would be implemented above or within the WAP stack, also the problem that not all protocols do use sessions at all, would arise and would need to be solved. For example implementing a licensing system that limits the maximum number of concurrent WSP sessions is easy, but there is also connectionless WSP protocol that does not use sessions at all. The present invention, by checking the remote address and remote port information below the protocol stack in every data packet solves this problem in a general way.

The invention can be implemented as software, which when loaded into a computer will function as a gateway server according to the present invention. The functionality of the license control according to the invention can be programmed e.g. in the C or Java programming language, or any other programming language.

This paper presents the implementation and embodiments of the invention with the help of examples. It is obvious to a person skilled in the art, that the invention is not restricted to details of the embodiments presented above, and that the invention can be implemented in another embodiment without deviating from the characteristics of the invention. For example, although the foregoing is related to mobile terminals browsing the Internet or a WAP proxy, it is to be understood that the communication may be of different types including sending and receiving information, conducting transactions such as financial transactions sending and receiving electronic mail or messages. The range of activities includes accessing services, for example weather reports, news, stock prices, flight schedules, downloading ringing tones, banking services including information provision and payments. It may occur in communications environments other than the Internet and may also be used with other protocol stacks than WAP. Thus, the presented embodiments should be considered illustrative, but not restricting. Hence, the possibilities of implementing and using the invention are only restricted by the enclosed patent claims. Consequently, the various options of implementing the

invention as determined by the claims, including the equivalent implementations, also belong to the scope of the present invention.

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Claims

1. A method of controlling, at a server, access right of a message received from a terminal at the server, and where the message is processed by a protocol stack

5 (50), the method comprising:

checking the right of the message to enter the server before the message is allowed to pass to the protocol stack (50).

10 2. A method according to claim 1, wherein the message is a data packet comprising

a sender address specifying the address of the terminal,

a port number specifying the application address of the instance sending the message at the terminal, and

user data including the contents of the message,

15 and the method further comprises

reading both the sender address and the port number from the data packet for identifying the terminal.

20 3. A method according to claim 1, wherein the method further comprises:

communicating messages with a particular wireless network and for adapting messages received from the wireless network for the protocol stack (50), and after the adaptation performing the checking of the access right.

25 4. A method according to claim 2, wherein the method further comprises:

establishing a session between the server and the terminal and for receiving the data packet within the session,

reserving a license for the session as a response to having determined existence of access right, and

30 monitoring the time passed since the last data packet arrived in one session, and releasing the license for the session where a predetermined time has passed since the last data packet arrived in the session.

5. A method according to claim 2, wherein the method further comprises:

storing a number (Y) of access right licenses purchased by a licensee, and
reserving a license (C) for each different combination of sender address
and port number found in a data packet, and

5 controlling that the number of reserved licenses (C) does not exceed the
number of purchased access right licenses (Y).

6. A method according to claim 1, wherein the method further comprises:

10 passing the message to the protocol stack (50) in response to determining
allowed access, and
discarding the message in response to determining denied access.

7. A method according to claim 6, wherein the method further comprises:

returning an error message to the terminal in response to a discarded message.

15 8. A method according to claim 4, wherein where the license has been released
for a particular session and a data packet again arrives in that session, performing
the access right checking for the newly received data packet and reserving a new
license upon allowed access.

20 9. A method according to claim 4, wherein where a data packet arrives before said
predetermined time has passed, performing the access right checking for the
newly received data packet, and allowing access on basis of the already reserved
license without reserving a new license.

25 10. A method according to any preceding claim in which the terminals comprise
mobile terminals, for example cellular telephones, supporting the Wireless
Application Protocol (WAP).

30 11. A server for receiving a message from a terminal and comprising a protocol
stack (50) for processing the message according to a particular protocol stack, the
server further comprising:

license control means (53) for controlling the access right of the message to enter the server before the message is allowed to pass to the protocol stack (50).

12. A server according to claim 11, wherein the message is a data packet

5 comprising

a sender address specifying the address of the terminal,

a port number specifying the application address of the instance sending the message at the terminal, and

user data including the contents of the message,

10 and the server further comprises

means (53) for reading both the sender address and the port number from the data packet for identifying the terminal.

13. A server according to claim 11, wherein the server further comprises

15

a bearer adapter (51) for communicating messages with a particular wireless network and for adapting messages received from the wireless network for the protocol stack (50), and wherein the license control means (53) have been placed functionally below the protocol stack (50) and above the bearer adapter (51) in the server hierarchy.

20

14. A server according to claim 12, wherein the server further comprises

connection means (50 - 52) for establishing a session between the server and the terminal and for receiving the data packet within the session,

reservation means (53) for reserving a license for the session as a

25

response to the license control means (53) having determined existence of access right, and

timing means (53) for monitoring the time passed since the last data packet arrived in one session, and releasing the license for the session where a predetermined time has passed since the last data packet arrived in the session.

30

15. A server according to claim 12, wherein the server further comprises

storage means for storing a number (Y) of access right licenses purchased by a licensee, and

means for reserving a license (C) for each different combination of sender address and port number found in a data packet, and

5 means for controlling that the number of reserved licenses (C) does not exceed the number of purchased access right licenses (Y).

10 16. A server according to claim 11, wherein server further comprises means (53) for passing the message to the protocol stack (50) in response to determining allowed access and for discarding the message in response to determining denied access.

15 17. A server according to claim 16, wherein server further comprises means (53) for returning an error message to the terminal in response to a discarded message.

18. A server according to any of claims 11-17 comprising a gateway server serving a plurality of mobile terminals.

20 19. A server according to claim 18 comprising a WAP gateway.

25 20. A computer program product for controlling, at a server, access right of a message received from a terminal at the server, and where the message is processed by a protocol stack (50), the computer program product comprising:
computer readable program means (53, 56, 63) for controlling the access right of the message to enter the server before the message is allowed to pass to the protocol stack (50).

WAP stack

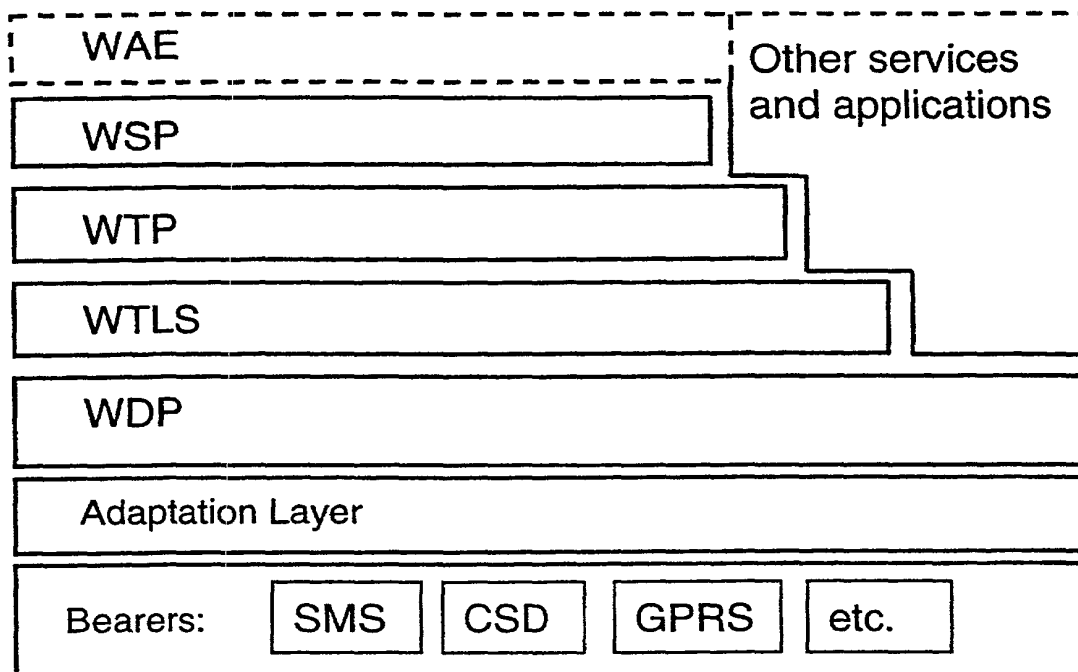


Fig. 1

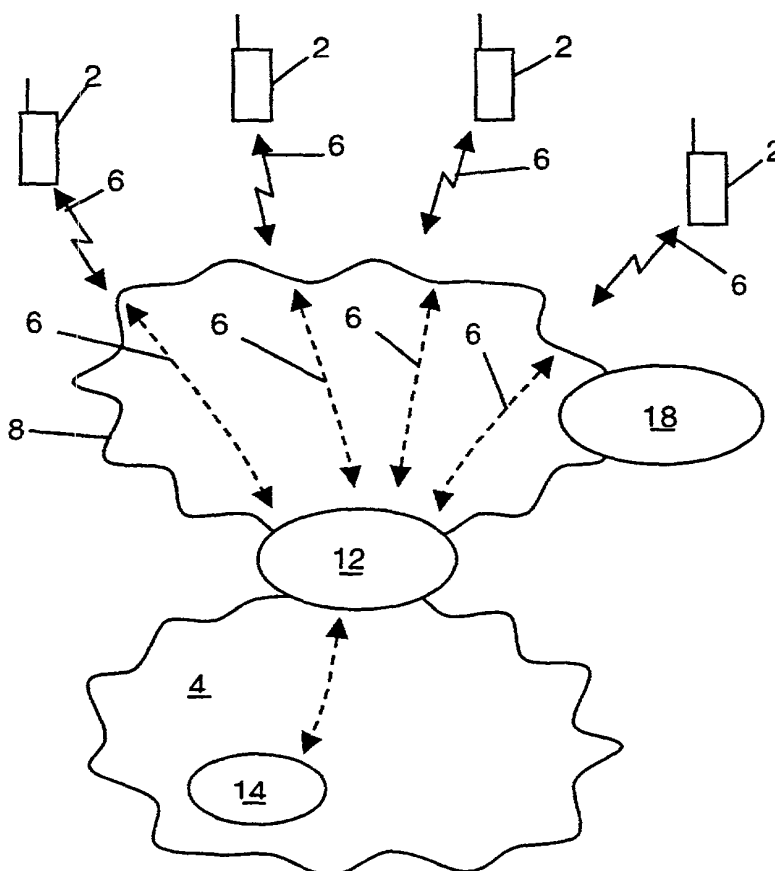


Fig. 2

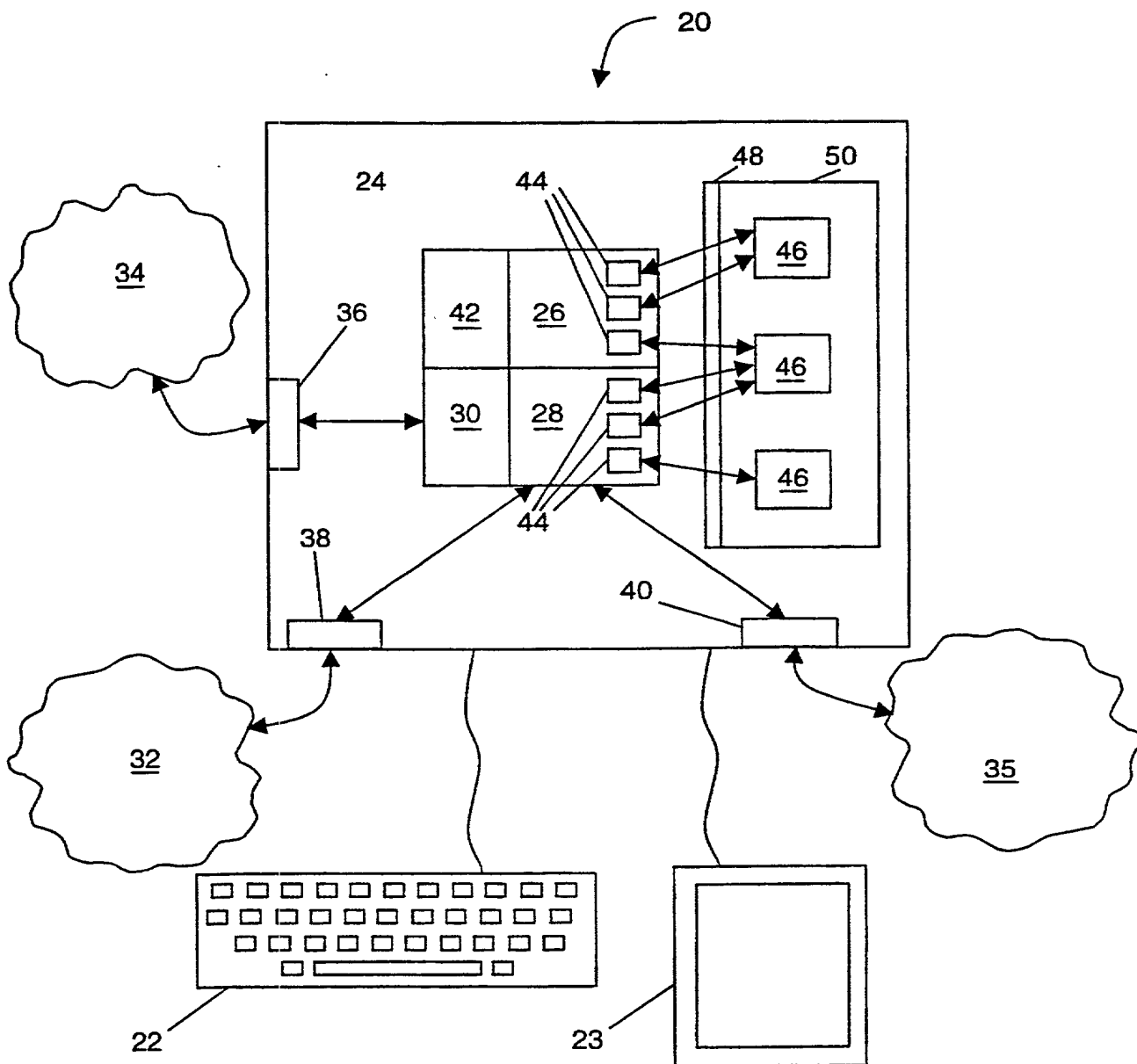


Fig. 3

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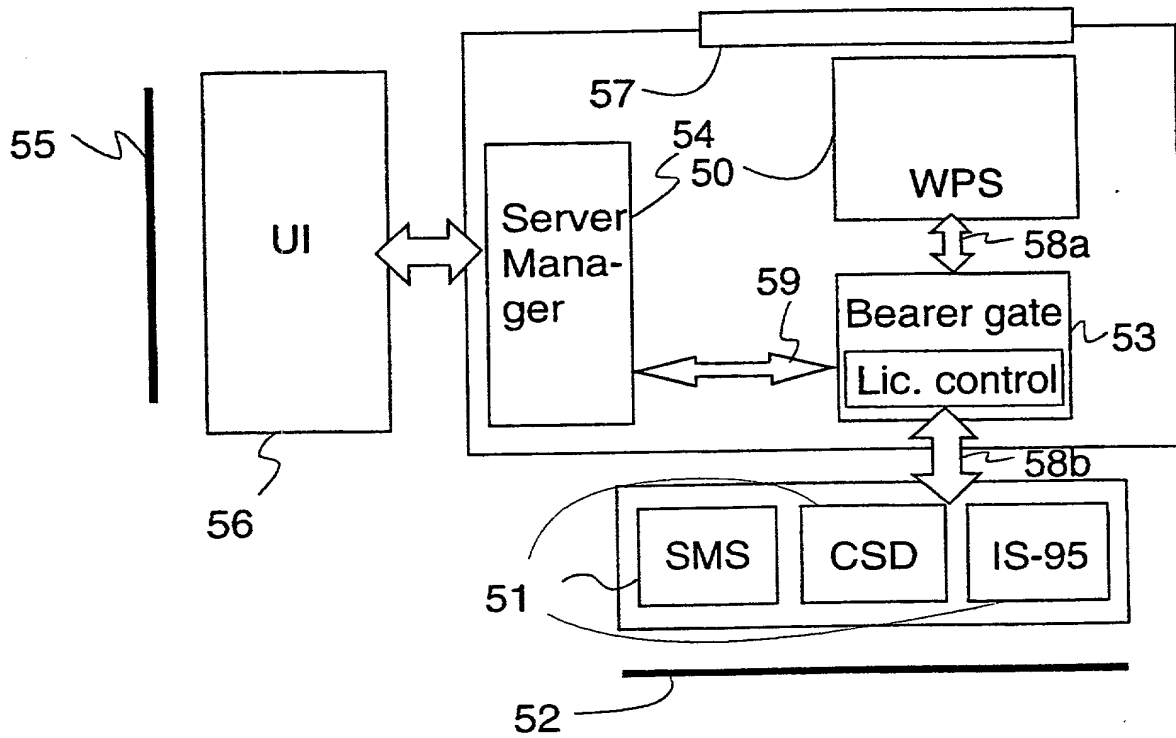


Fig. 4

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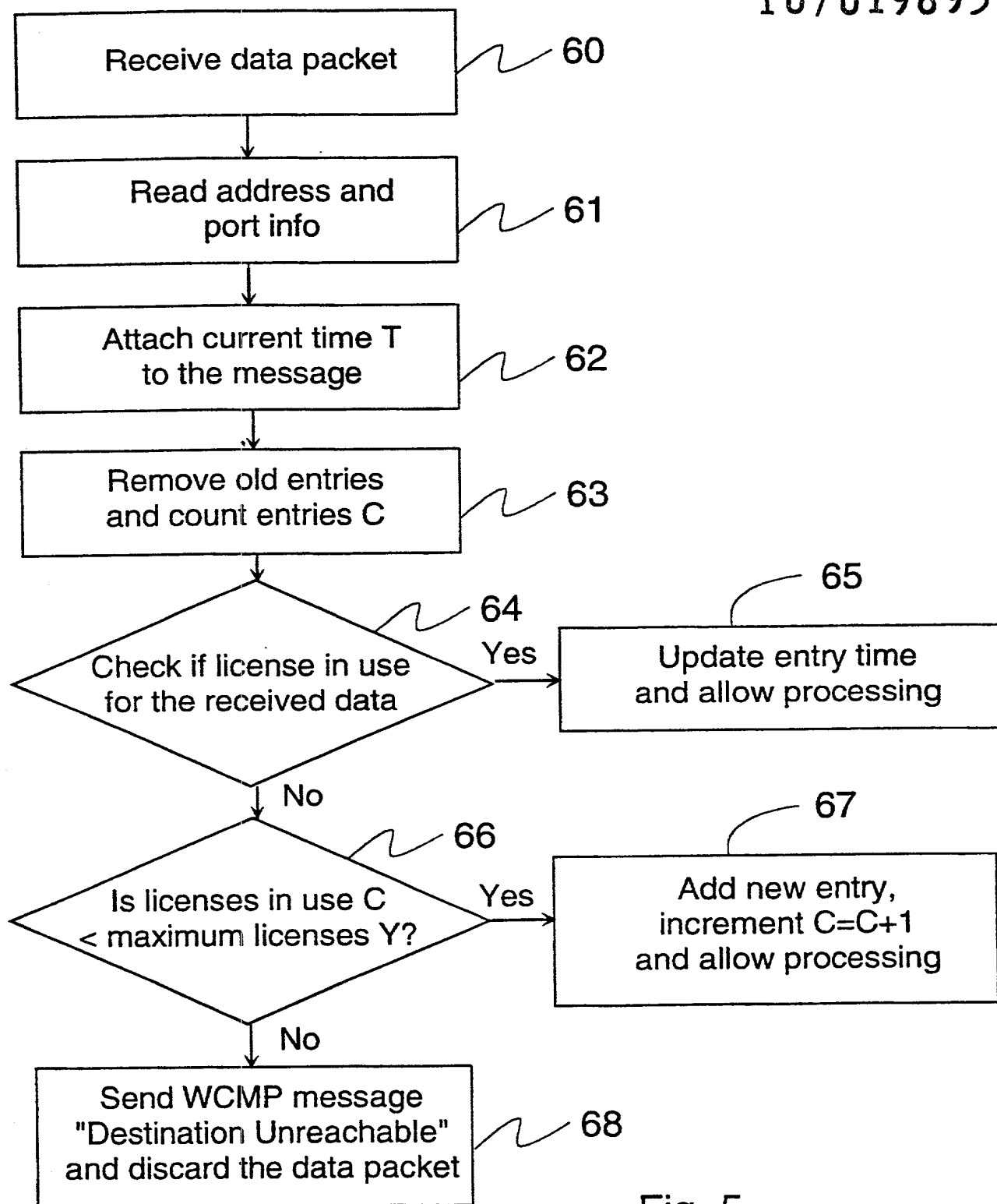


Fig. 5

DECLARATION AND POWER OF ATTORNEY FOR PATENT APPLICATION

English Language Declaration

As a below named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below next to my name,

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of the subject matter which is claimed and for which a patent is sought on the invention entitled:

Title: **LICENSE CONTROL AT A GATEWAY SERVER**

the specification of which

(check one)

- ☐ is attached hereto.
- ☒ was filed on _____ as United States Application No. **10/019,893** or PCT
International Application Number **PCT/FI00/00513** filed on **7 June 2000**
and was amended on (if applicable) **21 August 2001**

I hereby state that I have reviewed and understand the contents of the above-identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, Code of Federal Regulations, Section 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, Section 119(a)-(d) or Section 365(b) of any foreign application(s) for patent or inventor's certificate, or Section 365(a) of any PCT International Application which designated at least one country other than the United States, listed below and have also identified below, by checking the box, any foreign application for patent or inventor's certificate or PCT International application having a filing date before that of the application on which priority is claimed.

Prior Foreign Application(s)

(Number)	(Country)	(Day/Month/Year Filed)	<u>Priority Not Claimed</u>
991493	Finland	30 June 1999	<input type="checkbox"/>
PCT/FI00/00513	PCT	7 June 2000	<input type="checkbox"/>
			<input type="checkbox"/>
			<input type="checkbox"/>

I hereby claim the benefit under 35 U.S.C. Section 119(e) of any United States provisional application(s) listed below:

(Application Serial No.)

(Filing Date)

(Application Serial No.)

(Filing Date)

(Application Serial No.):

(Filing Date)

I hereby claim the benefit under 35 U.S.C. Section 120 of any United States application(s), or Section 365(c) of any PCT International Application designating the United States, listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior United States or PCT International Application in the manner provided by the first paragraph of 35 U.S.C. Section 112, I acknowledge the duty to disclose to the United States Patent and Trademark Office all information known to me to be material to patentability as defined in Title 37, C.F.R., Section 1.56 which became available between the filing date of the prior application and the national or PCT International filing date of this application:

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

(Application Serial No.)

(Filing Date)

(Status)
(patented, pending, abandoned)

I hereby declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under Section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issued thereon.

POWER OF ATTORNEY: As a named inventor, I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and transact all business in the Patent and Trademark Office connected therewith. (list name and registration number)

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Citizenship:

Post Office Address:

Full name of fifth inventor:

Fifth inventor's signature:

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